Miracles, Early Modern Science, and Rational Religion

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Readers of the New Testament could be excused for thinking that there is little consistency in the manner in which miracles are represented in the Gospels. Those events typically identified as miracles are variously described as "signs" (*semeia*), "wonders" (*terata*), "mighty works" (*dunameis*), and, on occasion, simply "works" (*erga*).[1] The absence of a distinct terminology for the miraculous suggests that the authors of the Gospels were not working with a formal conception of "miracle"—at least not in that Humean sense of a "contravention of the laws of nature," familiar to modern readers.[2] Neither is there a consistent position on the evidentiary role of these events. In the synoptic Gospels—Matthew, Mark, and Luke—Jesus performs miracles on account of the faith of his audience. In John's Gospel, however, it is the performance of miracles that elicits faith.[3] Even in the fourth Gospel, moreover, the role of miracles as signs of Christ's divinity is not straightforward. Thus those who demand a miracle are castigated: "Unless you see signs and wonders you will not believe."[4] Finally, signs and wonders do not provide unambiguous evidence of the sanctity of the miracle worker or of the truth of their teachings. Accordingly, the faithful were warned (in the synoptic Gospels at

1. See relevant entries in G. Kittel, ed., *Theological Dictionary of the New Testament*, 10 vols. (Grand Rapids, Mich.: Eerdmans, 1977), 2:284–317; 7:200–261; 8:113–26; M. Lattke, "New Testament Miracles Stories and Hellenistic Culture of Late Antiquity," *Listening* 20 (1985): 54–64.
2. This is hardly surprising, but is frequently overlooked in modern philosophical discussions of miracles. For David Hume's classic definition, see *An Enquiry concerning Human Understanding*, ed. L. A. Selby-Bigge (Oxford: Oxford University Press, 1982), 114, 115, n.
3. "And Jesus said to them, 'A prophet is not without honour, except in his own country and in his own house.' And he did not do many mighty works [δυνάμεισ] there because of their unbelief" (Matt. 13:57 f.); "But when he was in Jerusalem at the Passover, during the feast, many believed in his name when they saw the signs [σημεια] which he did" (John 2:23). On differences between John and the synoptic Gospels, see Norman Perrin, *The New Testament: An Introduction* (New York: Harcourt Brace Jovanovich, 1974), 225.
4. John 4:48. See also Matt. 12:38 f.; 16:4; Mark 8:11 f.; Luke 11:16, 29.

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least) that "false Christs and false prophets will rise and show signs and wonders [in order] to deceive."[5]

The subsequent history of "miracle" saw the formalization of the rather imprecise first-century terms "signs," "wonders," "works," and their evolution into the more exact medieval categories "marvels," "portents," "preternatural" events, and "miracles." This was followed by the eventual emergence in the early modern period of a simple dichotomy between the natural and supernatural along with the familiar notion of miracles as violations of the laws of nature. These different ways of conceptualizing exceptions to nature's normal course are of central importance to historians both of science and of Christianity: the former, because of the intimate connection between the idea of miracle and the idea of a law of nature; the latter because of the miracle narratives of Scripture and the role assumed by miracles in the justification of doctrinal claims. In both spheres, moreover, the issues of evidence and the reliability of testimony are central.

In this paper I shall set out three claims relating to the role of the miraculous in the histories of early modern science and religion. The first of these is that in the early modern period we witness a clear shift in the religious function of miracles, from which time they gradually cease to be understood within the context of faith and increasingly play a primary role in the rational justification of religious beliefs. To put it another way, the tension that we encounter in the canonical Gospels is resolved in favor of something that more closely approximates the Johannine than the synoptic position. Second, this shift reinforces a new conception of religion as having less to do with membership of the Church, with inner virtue, or with specific ritual practices, and more to do with subscription to a set of rationally justifiable propositions. The truth of religion, now understood primarily in propositional terms, is something that (in principle at least) can be tested in a neutral, objective sphere. Such tests were necessitated by the competing truth claims of the various new "religions," propositionally conceived. Third, science, or more correctly "natural philosophy," in at least some of its early modern forms, came to play an important role in the adjudication of rival religious claims. Natural philosophers, by virtue of their familiarity with the ordinary course of nature, could claim expertise in the identification of exceptions to that normal course. In addition, experimental philosophers had experience in judging the reliability of testimony to singular events. Natural philosophers could thus argue for the religious significance of their

5. Mark 13:22. See also Matt. 24:24; Deut. 13:1–2; Rev. 13:1.

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activities, inasmuch as they now performed these crucial adjudicatory functions in the context of this new understanding of true religion as a body of doctrines with objective and rationally justifiable foundations.[6] These transitions gave rise to a formal discourse about miracles that was somewhat removed from popular religious experience—a situation that reflects discussions of the miraculous that now routinely take place in the disciplinary context of the philosophy of religion, and which hinge upon issues of evidence and the status of laws of nature.

I. Miracles and Laws of Nature

It is generally acknowledged that the concept of physical laws of nature arose in the early modern period, when the longstanding notion of a natural moral law was applied to the material realm.[7] Prior to this, miracles cannot have been understood as events that contravened the laws of nature. As we have seen, the New Testament seems to have no conception that is directly equivalent to the modern "miracle." Augustine (354–430) is generally acknowledged to have been the first Christian writer to have attempted a formal account of "miracle."[8] For Augustine, the whole of nature was a miraculous

6. For previous treatments of miracles in relation to the natural sciences during this period, see Peter Dear, "Miracles, Experiments, and the Ordinary Course of Nature," *Isis* 81 (1990): 663–83; Lorraine Daston, "Miraculous Facts and Miraculous Evidence in Early Modern Europe," *Critical Inquiry* 18 (1991): 93–124; and "Baconian Facts, Academic Civility, and the Prehistory of Objectivity," *Annals of Scholarship* 8 (1991): 337–63; Peter Harrison, "Newtonian Science, Miracles, and the Laws of Nature," *Journal of the History of Ideas* 56 (1995): 531–53, and "Prophecy, Early-Modern Apologetics, and Hume's Argument against Miracles," *Journal of the History of Ideas* 60 (1999): 241–57.
7. On the origins of the notion of laws of nature, see John Henry, "Metaphysics and the Origins of Modern Science: Descartes and the Importance of Laws of Nature," *Early Science and Medicine* 9 (2004): 73–114; Friedrich Steinle, "The Amalgamation of a Concept—Laws of Nature in the New Sciences," in *Laws of Nature: Essays on the Philosophical, Scientific and Historical Dimensions*, ed. Friedel Weinert (Berlin: De Gruyter, 1995), 316–68; E. Zilsel, "The Genesis of the Concept of Scientific Law," *The Philosophical Review* 51 (1942): 245–67; Joseph Needham, "Human Laws and the Laws of Nature in China and the West," *Journal of the History of Ideas* 12 (1951): 3–32, 194–231; Jane Ruby, "The Origins of Scientific Law," *Journal of the History of Ideas* 47 (1986): 341–59; J. R. Milton, "Laws of Nature," in *The Cambridge History of Seventeenth-Century Philosophy*, 2 vols., ed. Daniel Garber and Michael Ayers (Cambridge: Cambridge University Press, 1998), 1:680–701. Specifically on theological influences, see Francis Oakley, "Christian Theology and the Newtonian Science: The Rise of the Concept of Laws of Nature," *Church History* 30 (1961): 433–57; M. B. Foster, "The Christian Doctrine of Creation and the Rise of Modern Natural Science," *Mind* 43 (1934): 446–68; Alan Padgett, "The Roots of the Western Concept of the 'Laws of Nature': From the Greeks to Newton," *Perspectives on Science and Christian Faith* 55 (2003): 212–21.
8. See, for example, John Hardon, "The Concept of Miracle from St. Augustine to Modern Apologetics," *Theological Studies* 15 (1954): 229–57; Benedicta Ward, *Miracles and the Medieval Mind: Theory, Record and Event 1000–1215* (Philadelphia: University of Penn-

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work of God.[9] Accordingly, miracles (*miraculum*) were to be understood primarily in terms of their impact on the observer. A miracle, he wrote, is an event "that is difficult or unusual above the hope or power of them who wonder."[10] Given God's control of nature, miracles could not be "contrary to nature" but rather were "contrary to our knowledge of nature."[11] While Augustine conceded that Christ's miracles were a sign of his deity, he nonetheless considered miracles in general to be ambiguous in their import, and at times he implied that their target audience was the vulgar.[12]

Late in life, however, Augustine came to view miracles in a more positive light, laying the foundations for the strong medieval association of miracles with sainthood. As Rowan Greer has argued, the accession of Constantine in the fourth century brought with it a new vision of the Christian life.[13] Broadly speaking, the Hellenistic Church had assimilated significant elements of the classical ideal of the philosophy, understanding the Christian life in terms of dedication to the pursuit of virtue and the quest for the good. Christian freedom, conferred through baptism, made this possible by clarifying the moral vision of the individual. With the rise of the Roman Imperial Church, however, Christianity was reconceptualized along more corporate lines. There followed a shift of focus away from individual piety with greater stress now being placed upon the empowerment of the individual through the Church and its saints. Augustine contributed to this process by promoting a new understanding of Christian freedom as service to God. In all of this, miracles were provided with a new role that established the contemporary authority of the Church by

sylvania Press, 1982), 3–5; Robert M. Grant, *Miracle and Natural Law in Graeco-Roman and Early Christian Thought* (Amsterdam: North-Holland, 1952), 214–20.

9. Augustine, *City of God*, X.12: "Isn't the daily course of nature itself a miracle, something to be wondered at? Everything is full of marvels and miracles, but they are so common that we regard them as cheap and of no account." Augustine, *Sermons* VII, in *Works of Saint Augustine*, 20 vols., ed. John E. Rotelle (New York: New City, 1997–), III/2:109.
10. Augustine, *De utilitate credendi* XVI.34, in *Nicene and Post-Nicene Fathers, Series I* (hereafter NPNF I), 14 vols., ed. Philip Schaff and Henry Wace (Peabody, Mass.: Hendrickson, 1994), 3:364.
11. Augustine, *City of God* XXI.8, trans. Marcus Dods (New York: Modern Library, 1950), 776. "For we give the name nature to the usual common course of nature; and whatever God does contrary to this, we call a prodigy, or a miracle. But against the supreme law of nature, which is beyond the knowledge both of the ungodly and of weak believers, God never acts, any more than He acts against Himself." *Contra Faustum*, XXVI.3 (NPNF I, 4:321 f.). Cf. *Sermons* VII, in *Works* III/2:78, 86.
12. Augustine, *Confessions* XXI.29–30; XXVII, 42; *Answer to the Pelagians* XXXII.52; *The Trinity* II.vii.12; *Expositions on the Psalms* 9, 9; *Sermons* III; *De utilitate credendi* XVI.34.
13. Rowan Greer, *The Fear of Freedom: A Study of Miracles in the Roman Imperial Church* (Durham, N.C.: Duke University Press, 1989), esp. 171–79. See also R. A. Marcus, *The End of Ancient Christianity* (Cambridge: Cambridge University Press, 1991), 149.

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placing it in continuity with those who had performed the gospel miracles.

The next significant modification in the understanding of the miraculous came with the reintroduction of the ideas of Aristotle to the West during the twelfth century. The major figure in this development—Thomas Aquinas (1224–74)—followed Augustine in stressing the subjective element of the miraculous event, pointing out that miracles are so called because they elicit wonder.[14] Aquinas also agreed with Augustine that miracles are not contrary to nature. But rather than arguing—as had his illustrious predecessor—that miracles are contrary to our knowledge of nature, he noted that in a miraculous event God acts "beside the order planted in nature."[15] In referring to an inherent natural order Thomas betrays his commitment to an Aristotelian conception of immanent natures, and to a relatively independent realm of nature that was at one remove from the immediate volitions of the deity. This order implanted within things, moreover, could on occasion miscarry, owing to defects or accidents in natural powers (Aquinas's example is the production of six fingers on a man).[16] Thus odd occurrences might not be miracles, but marvels or portents—*preternatural* events—brought about by aberrations in the normal course of nature. These might also be produced by the activities of angels or malevolent spirits.[17] Such preternatural occurrences, strictly speaking, were not miraculous, although Aquinas conceded that distinguishing between them might present difficulties to the human observer. "Nature," incidentally, is here understood in typically Aristotelian terms as "that which is wont to occur in things for the most part, but it is not everywhere in keeping with what always occurs: because many natural causes produce their effects in the same way usually, but not always; since sometimes, though seldom, it happens otherwise."[18]

Aquinas also provided miracles with a more formal evidentiary role than had Augustine. For doctrinal claims that are subject to reason (for example, the existence of God), confirmation is provided by rational argument (for example, the "five ways"); in matters of divine

14. Aquinas, *Summa Contra Gentiles* (hereafter SCG) 3b, 101, 5 vols., trans. English Dominican Fathers (London: Burns, Oates, and Washbourne, 1934), 4:60.
15. Aquinas, SCG 3b, 100 (Dominican Fathers ed., 4:58).
16. Aquinas, SCG 3b, 99 (Dominican Fathers ed., 4:57). Cf. *Commentary on Aristotle's Physics* II.viii.208. These events, while they take place within the sphere of nature, cannot be the subject of a "science" since they are accidental. See Aquinas, *Commentary on the Metaphysics of Aristotle* II.xi.8.2276.
17. Aquinas, SCG 3b, 103. For a helpful discussion of the category of the preternatural, see Daston, "Miraculous Facts and Miraculous Evidence."
18. Aquinas, SCG 3b, 99 (Dominican Fathers ed., 4:57).

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revelation that are above human reason, confirmation is by way of miracles and prophecy.[19] This distinction parallels the later division between "internal" and "external" evidences for Christianity. Aquinas does not speak of "proofs" in this context, however, but of "confirmation." He also retains the biblical emphasis on miraculous events as "signs." Miracles can function as signs in two ways. For unbelievers, who accept neither the authority of Scripture nor Church, they signify the divine warrant that attaches to particular doctrines. Aquinas writes in this context that miracles are for those who not only lack commitment to Christian doctrines, but who are "less perfect and less perceptive."[20] And, again, miracles do not compel belief.[21] For believers, however, the ability to perform miracles is a sign of sanctifying grace.[22] Thus within the pale of Christendom, miracles become a central feature of the process of canonization. Believers, moreover, accept doctrines that are beyond reason not on account of miracles, but on account of authority.[23] We are reminded here of Augustine's famous assertion that "For my part, I should not believe the gospel except as moved by the authority of the Catholic Church."[24]

In giving miracles an apologetic role in the persuasion of unbelievers, Aquinas might seem to be establishing a neutral rational space, beyond the boundaries of any single historical religion, in which the relative merits of competing religious doctrines can be subjected to a dispassionate adjudication. It must be remembered, however, that while there developed in the late Middle Ages increasingly sophisticated forensic and quasi-juridical procedures for winnowing the genuine from the doubtful miracle, the context in which the assessment of putative miracles took place was one in which, for the most part, the truth of Christian doctrine was taken for granted and in which the ecclesiastical authorities, whatever their reliance on formal criteria,

19. Aquinas, *Summa theologiae* (hereafter ST) 1a2ae.111, 4; 2a2ae. 171, 1; 2a2ae. 178, 1; 3a. 43, 1; SCG 4, 208.
20. Aquinas, *Commentary on the Gospel of Saint John*, chap. 6, lec. 1, sct. 843, trans. James A. Weisheipl and Fabien R. Larcher (Toronto: Pontifical Institute of Medieval Studies, 1980), 341.
21. Hence "one believes and another does not, when both have seen the same miracle." ST 2a2ae. 6, 1, 60 vols., trans. English Dominican Fathers (London: Eyre and Spottiswoode, 1964–76), 31:167.
22. Aquinas, ST 1a. 43, 3; 1a2ae. 111, 5.
23. Those things that God requires us to believe "which surpass human intelligence . . . are to be proved by the authority of Holy Writ." SCG 4.1 (Dominican Fathers ed., 5:5); Cf. ST 1a.1, 8.
24. Augustine, *Against the Epistle of Manichaeus* V.6, NPNF I, 4:131.

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retained their prerogative to determine which events counted as miraculous.[25]

It should also be born in mind when considering the role of miracles in the confirmation of doctrines that there remained the perennial problem of how miracles could confirm a doctrine when doctrinal orthodoxy was itself used to judge whether a miracle was genuine. On this question Thomas deferred to the New Testament notion of "discerning the spirits."[26] The ability to judge the true from the false miracle or prophecy was to be left to those who "by the aid of divine grace [are] instructed in the discerning of suchlike spirits."[27] In sum, while the Middle Ages witnessed some tendencies towards the formalization and rationalization of criteria for miracles, to a large degree miracles still acted as *signs* rather than as indisputable *evidences.* Moreover, the recognition of an event as miraculous was itself made possible by the divine gift of discernment. And, finally, at an institutional level, the ecclesiastical hierarchy retained the authority to make judgments about which contemporary events might count as miraculous.

In the early modern period much of this was to change. In the realm of natural philosophy, the rise of voluntaristic conceptions of God along with a trend towards occasionalist understandings of causation gave rise to the notion of divinely ordained, externally imposed laws of nature.[28] Related to this development was the demise of inherent Aristotelian natures and rise of mechanical philosophy and the corpuscular hypothesis. There was a growing propensity to regard nature as governed by a uniform set of divine volitions, variations in the regularities of which were attributed to deficiencies in human knowledge. This is quite different from a conception of the natural world in which God implants order in things, and in which nature has a degree of spontaneity and independence. The move towards stripping nature

25. On medieval testing of miracle reports, see Laura Smoller, "Defining the Boundaries of the Natural in Fifteenth Century Brittany: The Inquest into the Miracles of Saint Vincent Ferrer (d. 1419)," *Viator* 28 (1997): 333–59. The Council of Trent further formalized procedures for determining whether claimed miracles could be sanctioned as genuine. See *Canons and Decrees of the Council of Trent,* ed. and trans. H. J. Schroeder (London: Herder, 1941), 217.
26. 1 John 4:1; 1 Cor. 12:10. Cf. Luke 12:56; Matt. 16:1–4; 1 Cor. 2:14; 14:29.
27. Aquinas, SCG 3b, 154 (Dominican Fathers ed., 4:201). Cf. ST 1a2ae. 111, 4; 2a2ae, 171; Augustine, *The Trinity* III.ii.18, in *Works* I/5:137.
28. M. B. Foster, "The Christian Doctrine of Creation and the Rise of Modern Natural Science"; Francis Oakley, "Christian Theology and the Newtonian Science: The Rise of the Concept of Laws of Nature"; Margaret Osler, *Divine Will and the Mechanical Philosophy: Gassendi and Descartes on Contingency and Necessity in the Created World* (Cambridge: Cambridge University Press, 1994); Peter Harrison, "Voluntarism and Early Modern Science," *History of Science* 40 (2002): 63–89.

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of its independent causal efficacy while at the same time vesting causal powers in the divine will radically reduce the scope of both the preternatural and the miraculous—at least as the latter was typically understood. Furthermore, nature was gradually dispossessed of its deep symbolic meanings. As a consequence, the emblematic representations of revealed theological truths (such as the Resurrection) tended to disappear from understandings of the natural world. No longer was God believed to have invested the natural realm with signs and symbols of transcendental truths. Rather, the order of the natural world and remarkable contrivances it contained became premises from which certain basic characteristics of God could be inferred. As a consequence, the boundary between natural and revealed theology became much sharper. To take a specific example, at the beginning of the fifteenth century Spanish theologian Raymond Sebonde—now known primarily on account of Montaigne's famous "Apology"—had written at length on the book of nature, arguing that like God's other book, Scripture, it was sufficient for salvation and communicated something of God's triune nature.[29] Put simply, all the doctrines of revealed theology were evident in the natural world, rendering superfluous arguments that relied on miracles to establish the veracity of special revelation. From the seventeenth century onwards, however, nature was increasingly divested of its symbolic meanings. The religious significance of nature was now restricted to providing evidence for the basic arguments of natural theology—more specifically, the teleological or "physico-theological" argument.

The Protestant Reformation provided further impetus for these changes. Protestants generally were to insist, against both Catholics and radical enthusiasts, that the age of miracles had long ended.[30] Calvin, for example, argued that miracles had been wrought by Christ and the apostles to confirm the truth of the gospel, and that this had been their sole function. Having accomplished this purpose in the first centuries of the Christian era, miracles were no longer necessary. Calvin further observed that magicians and enchanters were notorious for the performance of supposed miracles. More pointedly, he

29. Raymon Sibiuda [Raymond Sebonde], *Theologia naturalis seu liber creaturarum*, ed. F. Stegmüller (Stuttgart-Bad Canstatt: F. Frommann, 1966), Prologus. The "Apology for Raymond Sebonde" may be found in *The Complete Essays of Montaigne*, trans. Donald Frame (Stanford, Calif.: Stanford University Press, 1958), 318–457.

30. D. P. Walker, "The Cessation of Miracles," in *Hermeticism and the Renaissance: Intellectual History and the Occult in Early Modern Europe*, ed. Ingrid Merkel and Alan Debus (Washington, D.C.: Folger Shakespeare Library, 1988), 110–24. There were patristic precedents for this view. See R. A. Marcus, *Gregory the Great and His World* (Cambridge: Cambridge University Press, 1997), 62–63.

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echoed biblical warnings against "false prophets," "lying signs," and "lying wonders" capable of drawing even the elect into error. Catholic miracles, he concluded, were "sheer delusions of Satan."[31] Thus while historical miracles had been important in establishing the divine mission of Christ and hence in providing evidential support for the propositional claims of genuine Christianity, the suggestion that miracles were still being performed counted as evidence only of human credulity, ecclesiastical imposture, and of the ever present danger of demonic delusions. A further consequence of the Reformation, related to these developments, was that it provided the occasion for the emergence of a new conception of "religion" that led indirectly to a redeployment of what had been an externally oriented use of miracles as confirmation of doctrines for unbelievers, to one that had a central role within Christendom.

II. The Protestant Reformation and the Idea of "Religion"

Thomas Aquinas, writing in the thirteenth century, classified "religion" (*religio*) as one of the virtues, and not, as we would now tend to conceptualize it, as a set of objectively identifiable beliefs and practices.[32] Over the course of the sixteenth and seventeenth centuries, however, "religion" underwent a remarkable transformation becoming the familiar "set of beliefs and practices." While the medieval notion of *religio* held sway, the modern problem of the conflicting truth claims of different "religions" could not arise, at least not in its familiar form. The virtue of "true religion" could be consistent with a variety of outward beliefs and practices. As the Renaissance Platonist Marsilio Ficino expressed it, one practiced "Christian religion" (no definite article) when one lived a life oriented towards truth and goodness. "All religion" he wrote, "has something good in it; as long as it is directed towards God, the creator of all things, it is true Christian religion."[33] True religion could thus be predicated of individuals who held mutually exclusive beliefs. By the same token, espousal of correct doctrine was not a guarantee of true religion. Protestant Reformer Ulrich Zwingli wrote in 1525 of "true and false

31. John Calvin, *Institutes of the Christian Religion*, 2 vols., ed. J. McNeill, trans. F. Battles (Philadelphia, Pa.: Westminster, 1960), Prefatory Address, 1:17–18, 136; 2:1467. Cf. Calvin, *Tracts and Treatises on the Reformation of the Church*, 3 vols., trans. H. Beveridge (Edinburgh: Banner of Truth, 1844), 1:92; *Commentary on the Gospel According to John*, in *Calvin's Commentaries*, 22 vols. (Grand Rapids, Mich.: Eerdmans, 2003), 17:89 f., 180 f.; 18:281.
32. Aquinas, ST 2a2ae. 81, 5–6. In the same work, incidentally, Aquinas observes that "science" (*scientia*) also is primarily a habit of mind, and only secondarily a method or body of organized propositions. ST 1a2ae. 49, 1; 1a2ae. 50, 3; 1a2ae. 52, 2; 1a2ae. 53, 1.
33. Marsilio Ficino *Opera*, 2 vols. (Basel: Ex officina Henrici Petrina, 1576), 1:6.

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religion as displayed by Christians."[34] In short, for these premodern thinkers, true religion was not identified with Christian beliefs and practices, but with an interior virtue. By the end of the seventeenth century, a radically different conception of religion had come into play—*the* Christian religion—identified as a set of beliefs and practices. As a number of scholars have argued, it is this familiar modern notion that makes possible the invention of non-Western "religions," and along with them, the problem of the competing truth claims of these invented traditions.[35]

These transitions are attested to in various ways. Where once God was thought to have revealed himself in Christ, now he was regarded as having revealed "a religion"—Christianity. "Christianity," as one English divine expressed it in the later seventeenth century, "is the Doctrine of Salvation, delivered to man by *Christ Jesus.*"[36] If Jesus had declared himself to be "the way, the truth, and the life" (John 14:6), now he was considered not to personify truth but to be the bearer of a set of truths. In this scheme of things, the miracles of Christ came to be regarded as having to do less with the sanctity of his person, or with relieving the sufferings of those with whom he came in contact, becoming instead proofs of the doctrines or "the religion" that he was now regarded as having delivered. In sum, emphasis shifted from the person and work of Christ, to the message that he taught.

The chief occasion for this reification of "religion" was the Protestant Reformation, one of the consequences of which was to raise in an acute fashion the issue of how competing truths claims within Christendom might be resolved in the absence of an arbiter such as the magisterium of the Church. While there is little doubt that for both Catholics and Protestants, personal piety and faith remained of fundamental importance, the very fact of religious pluralism called for the creation of a set of rational criteria that would enable an objective

34. Ulrich Zwingli, *De vera et falsa religione commentarius* [1525], in *Huldreich Zwinglis sämtliche werke*, 14 vols., ed. Emil Egli and others (Berlin: Nachfolger, 1905–), 3:622–912.
35. See, for example, W. C. Smith, *The Meaning and End of Religion* (London: SPCK, 1972); Peter Harrison, *"Religion" and the Religions in the English Enlightenment* (Cambridge: Cambridge University Press, 1990); Michel Despland, *La religion en occident: évolution des idées et du vécu* (Montréal: Fides, 1979); Nicholas Lash, *The Beginning and End of Religion* (Cambridge: Cambridge University Press, 1996); Ernst Feil, "From the Classical *Religio* to the Modern Religion: Elements of a Transformation between 1550 and 1650," in *Religion in History: The Word, the Idea, the Reality*, ed. Michel Despland and Gérard Vallée (Waterloo, Ont.: Wilfred Laurier University Press, 1992), 31–43, and *Religio: Die Geschichte eines neuzeitlichen Grundbegriffs vom Frühchristentum bis zur Reformation* (Göttingen: Vandenhoeck and Ruprecht, 1986).
36. Nathaniel Crouch, *The Strange and Prodigious Religions, Customs, and Manners, of Sundry Nations* (London: Printed for Henry Rhodes, 1683), 27 f. Cf. Humphrey Prideaux, *A Letter to the Deists* (London: Edward Castle, 1696), 30 f. and passim.

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assessment of the rival claims of the religions. As a consequence of this process, from the rather peripheral function that Aquinas had provided for miracles as signs for dim unbelievers, miracles moved to the center of rational discourse about *the* Christian religion. At the same time, the increasingly juridical approaches to miracles that had become part of the processes of canonization were imported into the new forensic approach to establishing the truth of the Christian religion.

The general trend is evidenced in the numerous seventeenth-century Protestant writings purporting to offer "impartial comparisons" of the religious traditions, or to survey the "evidences" of the Christian religion.[37] The new evidentiary role played by miracles was parasitic upon this new, propositional and rationalized conception of religion. Numerous writers—theologians and natural philosophers—commented on the foundational role played by miracles in establishing the truth of the Christian religion. Miracles and prophecy were moved to center stage, particularly in Protestant England, as *proofs* of the truth of Christianity, now conceived of as *the* Christian religion. Philosopher and physician John Locke (1632–1704), for example, insisted that, "The miracles that Christ did, are a proof of his being sent from God, and so his religion the true religion."[38] According to Robert Boyle (1627–91), the leading advocate of experimental philosophy in the seventeenth century, the evidence of miracles is "little less than absolutely necessary to evince . . . that the Christian [religion] does really proceed from God."[39] Theologian and champion of Newtonian science, Samuel Clarke (1675–1729), similarly announced that, "The Christian Revelation is positively and directly proved, to be actually and immediately sent to us from God, by the many infallible *Signs and*

37. See, for example, Gilbert Burnet, *An Impartial Survey and Comparison of the Protestant Religion* (London: R. Chiswell, 1685); John Owen, *A Brief and Impartial Account of the Nature of the Protestant Religion* (London: J. A., 1682); John Bradley, *An Impartial View of the Truth of Christianity* (London: W. Downing, 1699); Robert Jenkin, *The Reasonableness and Certainty of the Christian Religion* (London: P. B. and R. Wellington, 1700); Edward Stillingfleet, *A Rational Account of Protestant Religion* (London: D. White for H. Mortlock, 1665).

38. Locke, *Third Letter concerning Toleration*, in *The Works of John Locke*, 12th ed., 10 vols. (London: Thomas Tegg, 1823), 6:401.

39. Boyle, *The Christian Virtuoso*, in *The Works of the Honourable Robert Boyle*, 6 vols., ed. Thomas Birch (Hildesheim: Olms, 1966), 5:531. Cf. 5:524: There are "three grand arguments, that jointly evince the truth of the Christian religion in general . . . the excellency of the doctrine, which makes it worthy to have proceeded from God; the testimony of divine miracles, that were wrought to recommend it; the great effects produced in the world by it."

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Miracles, which the Author of it worked publickly as evidence of his Divine Commission."[40]

At the same time, the forensic procedures that had evolved in medieval and early modern Catholicism were adapted to the new task of testing the veracity of historical testimony to miracles. A good example is provided by Thomas Sherlock's *Tryal of the Witnesses of the Resurrection* (1729), in which testimony to Christ's Resurrection is tested in a moot court. This work ran to seventeen editions and has been plausibly suggested as the chief work to which Hume was responding in his essay "Of Miracles."[41] Needless to say, perhaps, in this particular case the witnesses to the Resurrection were found to be models of probity. Similar techniques for the sifting of historical evidence found a place in the realm of natural and experimental philosophy.[42] Given their expertise in both the weighing of evidence and in the phenomena of nature, it is not surprising that natural philosophers would make a case for their special expertise in judging the reliability of testimony to singular events, such as miracles.

III. Miracles and Natural Philosophy

As part of the early modern relocation of discussions of miracles to the sphere of objective evidence, the task of distinguishing the miraculous from the mundane was no longer left to the individual believer possessed of the eye of faith, nor to those blessed with the gift of discernment of the spirits. Neither could it to be left to ecclesiastical authorities, for precisely who counted as a religious authority was at issue, and in any case the situation called for a "disinterested" examination of evidence. So it was that the natural philosopher—for the purposes of the exercise appropriately neutral—came to perform this vital function. Francis Bacon asserted that the order of natural philosophers in "Salomon's house"—the prototypal scientific academy of his utopian *New Atlantis* (1627)—had a particular gift for distinguishing the genuine miracle from the spurious: "thou hast vouchsafed of thy grace to those of our order, to know thy works of creation, and the secrets of them; and to discern (as far as it apertaineth to the gener-

40. Samuel Clarke, "The Evidences of Natural and Revealed Religion," in *Works*, 2 vols. (London: J. and P. Knapton, 1738), 2:695. See also Robert Jenkin, *The Reasonableness and Certainty of the Christian Religion*, 33–38; Thomas Sprat, *History of the Royal Society* (London: T. R. for M. Martyn and J. Allestry), 352.

41. See J. C. A. Gaskin, *Hume's Philosophy of Religion* (London: Macmillan, 1988), 149 f.

42. Barabara Shapiro, "Testimony in Seventeenth-Century English Natural Philosophy: Legal Origins and Early Development," *Studies in History and Philosophy of Science* 33 (2002): 243–63; R. M. Sargeant, "Scientific Experiment and Legal Expertise: The Way of Experience in Seventeenth-Century England," *Studies in History and Philosophy of Science* 20 (1989): 19–45.

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ations of men) between divine miracles, works of nature, works of art, and impostures and illusions of all sorts."[43] Fellows of the Royal Society, an institution whose membership self-consciously sought to embody the ideals of Salomon's house, were later to mount a similar case for the singular expertise of the experimental philosopher. Bishop Thomas Sprat (1635–1713) wrote in his laudatory history of the Society that the experimental philosopher "cannot suddenly conclude all extraordinary events to be the immediate Finger of *God*, because he familiarly beholds the inward workings of things, and thence perceives that many effects, which use to affright the *Ignorant*, are brought forth by the common *Instruments of Nature.*"[44] The implications of this claim for the proof of a propositional religion were more explicitly spelled out by Robert Boyle, according to whom the natural philosopher "will examine with more strictness and skill, than ordinary men are able, miracles, prophecies, or other proofs, said to be supernatural, that are alleged to evince a real religion; yet if the certain and genuine characters of truth appear in it, he will be more thoroughly convinced of it than a less skilful man."[45]

These claims on behalf of experimental natural philosophy have three significant implications. First, they indicate how the scope of the activity had expanded to encompass all events, however unusual. Natural philosophy in the Aristotelian mode had been premised on a view of the ordinary course of nature as what happens "for the most part" or "usually."[46] Now the artificial, the exceptional, the accidental were all deemed appropriate subject matter for natural philosophy, although it was generally conceded that this new natural philosophy could not meet the strict Aristotelian criteria for *scientia.*[47] In a world in which miracles had ceased—as they had for most Protestants—and in which the constant efficacious willing of the deity ensured that every event, without exception, fell under a law (albeit one that might be unknown), single events, experimental outcomes, the odd observation—all fell within the ambit of natural philosophy.

43. Bacon, *The Advancement of Learning and A New Atlantis*, ed. Arthur Johnston (Oxford: Clarendon, 1974), 222.
44. Thomas Sprat, *History of the Royal Society*, 358 f.
45. Boyle, *The Christian Virtuoso*, in *Works*, 5:538. Cf. 5:531. For similar assertions of the role of natural philosophers in the assessment of miracle reports, see Anon, *A Short Discourse concerning Miracles* (London: Matt. Wotton, 1702); Robert Filmer, *An Advertisement to the Jurymen of England touching Witches* (London: I. C. for Richard Royston, 1688); John Gaule, *Select Cases of Conscience touching Witches* (London: W. Wilson for Richard Clutterbuck, 1646).
46. Aristotle, *Metaphysics* 1027a; Aquinas, SCG 3b, 99 (Dominican Fathers ed., 4:57). See also Daston, "Marvellous Facts and Miraculous Evidence," 108–10.
47. More strictly, in Baconian terms, these subjects were appropriate for natural histories that would provide the foundation for a natural philosophy.

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The second point to be made about the place of natural philosophy in discussions of the miraculous concerns the new role of objective evidence in the assessment of religious claims. As already noted, Protestants typically argued that the age of miracles had come to end at some point during the first few centuries of the Christian era.[48] For those Protestants, putative contemporary miracles served as evidence only of deception, credulity, or both. Genuine miracles were always past events and hence were transposed from the realm of immediate experience to that of historical evidence. Partly for this reason fulfilled prophecies, which unlike the gospel miracles could be witnessed and experienced in the present, came to assume a more prominent place in the Protestant arsenal of external evidences.[49] On the face of it, the relocation of miracles from the realm of the experiential to the historical might seem to place them beyond the scope of natural philosophy. However, natural philosophers could still play an important role by exposing the fraudulent nature of contemporary miracles or, conversely, by defending their authenticity. Furthermore, natural philosophy, as then envisaged, still concerned itself with "historical" claims, insofar as it relied upon a cumulative record of testimonies. Francis Bacon, when articulating his influential conception of natural philosophy, insisted that it be grounded in "natural histories"—that is to say, in organized and systematic reports of observations.[50] Judgments about historical testimony, broadly conceived, were thus integral to the practice of the natural sciences.[51]

All of this amounted to the construction of a quite new framework within which the claims of the truth of the Christian religion were to

48. See, for example, Thomas Fuller, *The Holy State and the Profane State*, 3rd ed. (London: R. Daniel for J. Williams, 1652), 39; John White, *The Way to the True Church*, 2nd ed. (London: Richard Field for John Bill and William Barret, 1610), 301 f.; Reginald Scot, *The Discoverie of Witchcraft* [1584] (Totowa, N.J.: Rowman and Littlefield, 1973), 125–34; William Whiston, *Mr. W's Account of the Exact Time when Miraculous Gifts Ceas'd in the Church* (London: For the author, 1749), 7, 9–11. For the persistence of contemporary miracles amongst radical Protestants, see Keith Thomas, *Religion and the Decline of Magic* (New York: Scribners, 1971), 126–28; Rosemary Moore, "Late Seventeenth-Century Quakerism and the Miraculous," in *Signs, Wonders, Miracles: Representations of Divine Power in the Life of the Church*, ed. Kate Cooper and Jeremy Gregory (Woodbridge, U.K.: Boydell, 2005), chap. 24.

49. See Harrison, "Prophecy, Early-Modern Apologetics, and Hume's Argument against Miracles."

50. Bacon, *The Great Instauration*, in *The Works of Francis Bacon*, 14 vols., ed. James Spedding, Robert Ellis, and Douglas Heath (London: Longmans, 1857–74), 4:28.

51. On the role of witness and testimony in experimental natural philosophy, see Steven Shapin, *The Social History of Truth: Civility and Science in Seventeenth-Century England* (Chicago: University of Chicago Press, 1994), esp. 211–42; Simon Schaffer, "Godly Men and natural Philosophers," *Science in Context* 1 (1987): 55–85; Peter Dear, "Miracles, Experiments, and the Ordinary Course of Nature," *Isis* 81 (1990): 663–83.

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be tested. A consequence of this development—and not necessarily one intended by the relevant agents—was the promotion of a conception of religious truth as something that was to be established on rational grounds, as it were, independent of pre-existing religious commitments. Religious truths were to be tested in a public and putatively neutral arena. As an indication of this transition, the ability to discern the genuine miracle was no longer a spiritual gift associated with personal piety or religious maturity—although Bacon retains an element of this—but was rather to do with competence in the procedures of experimental philosophy. This contrasts instructively with the position of Augustine, for whom the discernment of such matters was related to the extent of one's participation in the divine light: "As regards spiritual and rational beings, to which class the human soul belongs, the more they partake of this unchangeable law and light, the more clearly then see what is possible, and what impossible; and again, the greater their distance from it, the less their perception of the future, and the more frequent their surprise at strange occurrences."[52]

A third consequence of the involvement of the natural sciences in the assessment of miracle claims concerns the status of natural philosophy and natural philosophers. If experimental natural philosophers could make good their claim to be arbiters of religious truth, they could, in principle at least, ameliorate one of the fundamental problems of early modern Europe, that of distinguishing genuine from spurious religion. There were a number of facets to this imagined role. Mainstream Protestant controversialists sought to undermine the religious authority of contemporary miracle workers by providing naturalistic explanations for their performances or by exposing them as frauds. Their aim was thus to establish the falsity of Roman religion or of one of the enthusiastic Protestant sects. At a more general level, natural philosophers could also weigh historical testimony to past miracles, demonstrating that biblical miracles were uniquely well attested, and hence establish the veracity of more basic Christian claims over against those of Judaism, "Mahometanism," or the generic "heathenism." Joseph Glanvill (1636–80), an Anglican clergyman and one of the first Fellows of the Royal Society, thus proudly asserted that "the *Free Philosophy* lays a foundation for the *defence* of the greatest *sublimities* of *Faith* . . . by shewing the certainty, and *divine* Original of the *Testimony* that acquaints us with those *sacred* Mysteries." It thus establishes "the *Infallible* truth of *Scripture History*,

52. Augustine, *Contra Faustum Manichaeum* XXVI, 3 (NPNF I, 4:322). Miracles never transgress "the supreme law of nature, which is beyond the knowledge both of the ungodly and of weak believers" (NPNF I, 4:321).

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and twists such a cord as is as strong as any thing in *Geometry* or *Nature.*"[53] Natural philosophers could achieve this not only through their confirmation or disconfirmation of those miraculous events that, according to Boyle, were "absolutely necessary" to establish the truth of the Christian religion, but were also in a position to discern order and wisdom in the arrangement of the natural world, and thus to furnish rational arguments for the more basic tenets of natural theology. Part of the strategy here was to claim that the physico-theological argument—the argument from design and the only classical argument to rely directly on natural philosophical claims—was superior to the alternatives, the ontological and the cosmological arguments, neither of which stood in no need of support from natural philosophy or natural history.[54] This explains Robert Boyle's confident assertion that "the *New Philosophy* may furnish us with some new Weapons for the defence of our ancientest *Creed.*"[55] God's wisdom in the Creation is apparent to even "a superficial philosopher," he wrote, "yet how wise an agent he has in these works expressed himself to be, none but an experimental philosopher can well discern."[56] Experimental natural philosophy could now be regarded as "philosophical worship" or "reasonable worship" of God.[57]

Natural philosophers thus claimed not only to be the most able judges of miracle reports—and thus to be the ultimate arbiters of which religion was true—but they also claimed to be in the best position to establish the rational foundations of fundamental religious beliefs. The social legitimation of the new experimental philosophy was furthered by the contention of its leading exponents that they had a unique expertise in establishing both the external evidences for the Christian religion (miracles and prophecy) and the internal evidences for religious belief in general (primarily, the argument from design). In this manner, determination of the truth of the Christian religion was subtly shifted into the neutral territory of natural philosophy. With the benefit of hindsight this can be judged to have been a somewhat precarious foundation. The assaults of Hume and others shifted the discussion away from a determination of which miracles were true to the issue of whether any miracle, in principle, could be

53. Joseph Glanvill, *Philosophia Pia* (London: J. Macock for James Collins, 1671), 84.
54. See, for example, Boyle, *A Disquisition about the Final Causes of Natural Things* (London: H. C. for John Taylor, 1688), 213.
55. Boyle, *Some Physico-Theological Considerations about the Possibility of the Resurrection* (London: T. N. for H. Herringman, 1675), preface.
56. Boyle, *Some Considerations touching the Usefulness of Experimental Natural Philosophy,* in *Works,* 2:15; cf. 2:6, 20.
57. Boyle, *Usefulness of Experimental Natural Philosophy,* in *Works,* 2:63.

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genuine. As for the grounding of natural theology in the argument from design, in the light of subsequent nineteenth-century developments, this proved to be an ill-fated combination.

IV. Conclusion

Historian of science Steven Shapin has observed that "the more a body of knowledge is understood to be objective and disinterested, the more valuable it is as a tool in moral and political action."[58] Certainly this rings true with regard to the treatment of miracles in the seventeenth century. So important was their role as evidences of the truth of the Christian religion that the determination of whether or not credit should be given to miracle testimony could not be left to those with an overt religious interest. Thus the business of treating the miraculous was, as it were, "subcontracted" to natural philosophy. This is not to say that natural philosophers did not have religious interests, but that for the purposes of impartial judgment, such interests were set aside. Without the adoption of this "objective" stance, their verdicts about miracles would have lacked force. Thus miracles attained the status of objective evidence. Shapin has also suggested that one of the cultural factors that gave testimony to singular events an epistemological status in early modern experimental philosophy was the fact that there was a precedent for acceptance of such testimony in the sphere of religious knowledge (that is, in the evaluation of miracle reports).[59] While this is true to a degree, I think it underplays the relative novelty of the early modern Protestant use of miracles as evidences. My suggestion here is rather that we ought to think in this context of the emergence of two parallel practices for the treatment of testimony that lend each other mutual support. The new epistemology of experimental natural philosophy thus makes a contribution to an equally new approach to religion. Where it is usual for historians to speak of religion and the origins of modern science, it is also appropriate in this context to speak of science and the origins of modern "religion."

A further implication of this discussion concerns the treatment of miracles that typically takes place in the contemporary philosophy of religion context. Here, David Hume's classic understanding of "miracle" as a contravention of the laws of nature is often assumed to have represented the Christian understanding of miraculous phenomena

58. Steven Shapin, *The Scientific Revolution* (Chicago: University of Chicago Press, 1996), 2.
59. Shapin, *Social History of Truth*, 209.

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from New Testament times to the present.[60] Miracles, thus understood, are assumed always to have served as evidences—usually dubious—for the truth of religious belief. There may be some merit in treating miracles in this a-historical fashion, either to train the minds of the young in philosophical argumentation, or to demonstrate one's mental prowess. However, the relation of these exercises to historical reality is tenuous at best. Throughout history, miracles have been understood in quite different ways, and they have fulfilled various functions in the religious life. It should not be assumed that the circumscribed philosophical understanding of miraculous phenomena that has enjoyed increasing prominence since the seventeenth century is representative of the everyday experience of religious individuals from any period of history.

Finally, it is worth reflecting further on what all of this means for the more general question of the relationship between science and religion in the modern West. While it is sometimes assumed that in the seventeenth century natural philosophy established its credentials by asserting its independence from, or even opposition to, religion, it is clear from this discussion that fortunes of natural science were tightly bound up with those of theology. In spite of the retrospective reverence with which seventeenth-century "scientists" such as Boyle and Newton are now treated, it is important to understand that the new forms of natural philosophy that they sponsored enjoyed none of the cultural prestige or epistemic eminence now associated with the natural sciences. It was partly by proving their religious usefulness that these new forms of knowledge gradually achieved a measure of social legitimacy. The attempt to establish the religious utility of science had the unintended consequence of transforming religion itself, and was one factor in the creation of modern "religion." With the passage of time, however, the power relation between these two enterprises has been almost completely reversed, and now reliable knowledge is typically understood to be that which conforms to the standards of scientific knowing.

60. There are happy exceptions. See, for example, the historical treatment of R. M. Burns, *The Great Debate on Miracles: From Joseph Glanvill to David Hume* (London: Bucknell University Press, 1981). More philosophical, yet still historically informed, is John Earman, *Hume's Abject Failure: The Argument against Miracles* (Oxford: Oxford University Press, 2000).

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